

EXHIBIT 2

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

WSOU INVESTMENTS, LLC d/b/a
BRAZOS LICENSING AND
DEVELOPMENT,

Plaintiff,

v.

HUAWEI TECHNOLOGIES CO., LTD.
AND HUAWEI TECHNOLOGIES USA
INC.,

Defendants,

Case No. 2:18-cv-00533-ADA
Case No. 2:18-cv-00535-ADA
Case No. 2:18-cv-00538-ADA

JURY TRIAL DEMANDED

**DECLARATION OF TAL LAVIAN PH.D.
REGARDING CLAIM CONSTRUCTION**

I. INTRODUCTION

1. My name is Tal Lavian, and I have been retained as a technical expert by counsel for Defendants Huawei Technologies Co., Ltd. and Huawei Technologies USA Inc. (collectively, “Huawei” or “Defendants”) to address certain issues concerning U.S. Patent No. 6,882,627 (“‘627 Patent”), U.S. Patent No. 7,508,755 (“‘755 Patent”), and U.S. Patent No. 7,872,973 (the “‘973 Patent”) that have been asserted against Huawei by WSOU Investments, LLC D/B/A Brazos Licensing and Development (“WSOU” or “Plaintiff”). Unless otherwise stated, the matters contained in this Declaration are of my own personal knowledge and, if called as a witness, I could and would testify competently and truthfully with regard to the matters set forth herein.

2. My opinions are based on my years of education, research and experience, as well as my investigation and study of relevant materials. A list of materials considered is included in **Exhibit A** to my declaration.

3. I may rely upon these materials, my knowledge and experience, and/or additional materials in forming any necessary opinions. Further, I may also consider additional documents and information to rebut arguments raised by Plaintiff. I reserve any right that I may have to supplement this declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I reserve any right that I may have to consider and comment on any additional expert statements or testimony of Plaintiff’s experts, if any, in this matter.

4. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

5. I am being compensated at my usual consulting rate of \$ 400 per hour for my time spent working on issues in this case. My compensation does not depend upon the outcome of this matter or the opinions I express.

II. QUALIFICATIONS

6. I am qualified by education, knowledge, training, and experience to testify as an expert in the field of telecommunications and network communications. Attached as **Exhibit B** to this Declaration is a copy of my curriculum vitae detailing my education and experience. Additionally, the following overview of my background pertains to my qualifications for providing expert testimony in this matter.

7. As a scientist, educator, and technologist, I have more than 30 years of experience working with and studying network communications, computer networking, telecommunications, and software.

8. I am currently a named inventor or co-inventor on more than 120 issued U.S. patents and patent applications, almost all of them are in the area of telecommunications and network communications that are related to the subject matter in the '627, '755 and '973 Patents. Examples of some of my inventions are the following patents: US7,860,999, US6,772,205, US7,433,941, CA2,358,525, EP1,142,213, US6,175,868, US7,710,871, and US7,359,993. A list of granted patents and patent applications is included in my curriculum vitae.

9. For these reasons and because of my technical experience and training as outlined below, I believe I am qualified to offer technical opinions regarding the '973, '627, and '755 Patents.

10. Specifically, I received a Ph.D. in Computer Science, specializing in networking and communications, from the University of California at Berkeley in 2006 and obtained a Master's of Science ("M.Sc.") degree in Electrical Engineering from Tel Aviv University, Israel,

in 1996. In 1987, I obtained a Bachelor of Science (“B.Sc.”) in Mathematics and Computer Science, also from Tel Aviv University.

11. I was with the University of California at Berkeley for almost 20 years, where I served as Berkeley Industry Fellow, Lecturer, Visiting Scientist, Ph.D. Candidate, and Nortel’s Scientist Liaison. I was employed by the University of California at Berkeley and was appointed as a lecturer and Industry Fellow in the Center of Entrepreneurship and Technology (“CET”) as part of UC Berkeley College of Engineering. I have taught several classes on wireless devices and smartphones. Some positions and projects were held concurrently, while others were held sequentially. My research had been focused on network services, communication infrastructure, and telecommunication systems.

12. From 2007 to the present, I have served as a Principal Scientist at my company, TelecommNet Consulting Inc., where I develop network communication technologies and provide research and consulting in advanced technologies, mainly in computer networking and Internet technologies. In addition, I have served as a Co-Founder and Chief Technology Officer (CTO) of VisuMenu, Inc. from 2010 to the present, where I design and develop architecture of visual IVR technologies for smartphones and wireless mobile devices in the area of network communications.

13. During 2018–2019, I served as a Principal Investigator and a CTO for CRadar.Ai, a company that develops clean wireless radio signal generators for wireless communications and radar systems. In addition, I have worked on wireless and cellular systems and worked on various projects involving the transmission and streaming of digital media content.

14. In 2008, I served as a Communications Consultant at IXIA (Ixiacom.com , now a division of Keysight Technologies), where I researched and developed advanced network communications testing technologies for ensuring wireless service quality, including developing

testing for IP routing and switching devices and broadband access equipment, and providing traffic generation and emulation for the full range of protocols, such as routing, Multi-Protocol Label Switching (“MPLS”), Layer 2 and Layer 3 Virtual Private Networks (“VPN”), carrier Ethernet, broadband access, and data center bridging.

15. For eleven years, from 1996 to 2007, I worked for Bay Networks and Nortel Networks. Bay Networks was in the business of making and selling computer network hardware and software. Nortel Networks acquired Bay Networks in 1998, and I continued to work at Nortel after the acquisition. During my tenure at Bay and Nortel, I held positions including Principal Scientist, Principal Architect, Principal Engineer, Senior Software Engineer, and I led the development and research involving a number of networking technologies. I led the efforts of Java technologies at Bay Networks and Nortel Networks. In addition, from 1999–2001, I served as the President of the Silicon Valley Java User Group with over 800 active members from many companies in Silicon Valley.

16. Prior to that, from 1994 to 1995, I worked as a software engineer and team leader for Aptel Communications, designing and developing wireless technologies, mobile wireless devices and network software products.

17. From 1990 to 1993, I worked as a software engineer and team leader at Scitex Ltd., where I developed system and network communications tools (mostly in C and C++).

18. From 1987 to 1990, I worked as a software engineer for Shalev Inc. designing and developing real-time software and algorithms.

19. I have extensive experience in communications technologies including wireless technologies, routing and switching architectures and protocols, including MPLS Networks, Layer 2 and Layer 3 VPN, and Pseudowire technologies. Much of my work for Nortel Networks

(mentioned above) involved the research and development of these technologies. For example, I wrote software for Bay Networks and Nortel Networks switches and routers, developed network technologies for the Accelar 8600 family of switches and routers, the OPTera 3500 SONET switches, the OPTera 5000 DWDM family, and the Alteon L4-7 switching product family. I wrote software for Java-based device management, including a software interface for device management and network management in the Accelar routing switch family's network management system. I have also worked on enterprise Wi-Fi solutions, wireless mobility management, and wireless infrastructure.

20. I am a member of a number of professional affiliations, including the Association of Computing Machinery ("ACM") and the Institute of Electrical and Electronics Engineers ("IEEE") (senior member). I am also certified (2012) under the IEEE WCET (Wireless Communications Engineering Technologies) Program, which was specifically designed by the IEEE Communications Society (ComSoc) to address the worldwide wireless industry's growing and ever-evolving need for qualified communications professionals. Also, I have co-authored more than 25 scientific publications, journal articles, and peer-reviewed papers. The titles of all publications I have authored within the preceding ten years appear in my curriculum vitae.

21. A complete list of cases in which I have testified at trial, hearing, or by deposition within the preceding four years is provided in **Exhibit C**, which is attached to my declaration.

22. Based on my education, training, knowledge, expertise, and experience, I believe I am qualified to render the opinions set forth here.

III. LEVEL OF ORDINARY SKILL IN THE ART

23. I have been asked to offer my opinion regarding the level of ordinary skill in the art with respect to the '627, '755, and '973 Patents.

24. I understand that an assessment of claims of these patents should be undertaken

from the perspective of a person of ordinary skill in the art as of the earliest claimed priority date. I have also been advised that to determine the appropriate level of a person having ordinary skill in the art, the following factors may be considered: (1) the types of problems encountered by those working in the field and prior art solutions thereto; (2) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; (3) the educational level of active workers in the field; and (4) the educational level of the inventor. The '627 patent is generally directed to techniques for facilitating the selection of multiple paths through a network represented by a network topology which takes into account shared risk which may exist between network resources. *See* '627 Patent, Abstract, 2:5-9. The '627 patent summarizes certain technical problems in the field that existed at the time, over two decades ago. *See* '627 Patent, 1:13-2:2.

25. The '755 Patent is generally directed to methods and devices in networking for re-routing traffic traveling in both directions from a bi-directional label switched path (LSP) to an alternate path using the same network elements. *See* '755 Patent, 1:47-49. The '755 Patent summarizes certain technical problems in the field that existed at the time, nearly two decades ago. At the time of the invention, a failure in a network device or link occurs downstream of a source network device, so called existing MPLS Fast Re-routing techniques are employed to bypass the failure. *See* '755 Patent, 1:15-17.

26. The '973 Patent generally relates to the field of network devices, and more specifically, to a method and system for incorporating a queuing device in a network device in a communications network. *See* '973 Patent, 1:7-11.

27. In my opinion, with regard to the '627, '755, and '973 Patent, a person of ordinary skill in the art would have had at least a Master's degree in computer science, computer engineering, electrical engineering, or a related field, with 3-5 or more years of experience in

networking systems. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

IV. SCOPE OF OPINIONS

28. I have been asked to provide certain opinions regarding claim construction. I have been asked to provide my opinions regarding the meaning of certain disputed claim terms as understood by one of ordinary skill at the time of the invention. My opinions are based on my understanding of what the disputed claim terms and proposed construction were, and what the evidence relied upon by the parties was, as of the time that I executed this Declaration.

V. LEGAL STANDARDS RELIED UPON

29. Certain legal principles that relate to my opinions have been explained to me.

30. I understand that ultimately the Court will determine the matter of how specific terms shall be construed. The intent of this Declaration is to help inform the Court how a person of ordinary skill in the art (“POSITA”) would understand the meaning of certain disputed claim terms in the context of the ’627, ’755, and ’973 Patents.

31. I understand that in district court litigation patent claims are generally given the meaning that the terms would have to a POSITA in question as of the earliest claimed priority date. It is my understanding that a patentee can decide to act as her own lexicographer by explicitly defining terms to have specific meaning within the bounds of the patent specification.

32. It is my understanding that statements made to the patent office by the patentee or their legal representative during prosecution can serve to illuminate, or possibly narrow the proper scope of claim terms, and such statements must be considered when one searches for the appropriate claim construction. This is sometimes referred to as disclaimer.

33. I have endeavored, to the best of my ability, to take into account all of these factors during the process of my analysis.

34. I understand that a claim is indefinite if, when read in light of the specification and its prosecution history, the claim fails to inform, with reasonable certainty, a POSITA about the scope of the claimed invention.

35. I understand that “means-plus-function” claiming occurs when an element in a claim is written as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof. I understand that in such a case, the claim shall be construed to cover the corresponding structure, material, or acts described in the specification that are clearly linked to the claimed function, and equivalents thereof.

36. I also understand that where the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function, the claim term is a means-plus-function term, whether or not the word “means” is used.

37. I further understand that, once it is determined that a claim term is a means-plus-function term, the court applies a two-step analysis. I understand that the first step requires identifying the function, staying true to the claim language and the limitations expressly recited by the claims. I understand that the second step is identifying the structure in the patent specification that is clearly linked to and performs the claimed function.

38. I understand that, for a computer-implemented invention claimed with a means-plus-function claim term, the structure disclosed in the specification must generally be more than simply a general-purpose computer or microprocessor in order to avoid purely functional claiming. I further understand that a computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure generally must include an algorithm. I further understand that the requirement to disclose an algorithm may be met in several ways, and is not limited to a formula

of mathematical symbols. I understand that, for example, the steps, formula, or procedures to be performed by the computer might be expressed textually, or shown in a flow chart.

39. I understand that whether or not the specification adequately sets forth and clearly links structure corresponding to the claimed function necessitates consideration of that disclosure from the viewpoint of a POSITA. I understand that if the specification fails to disclose and clearly link a structure sufficient to perform the claimed function, the means-plus-function term, and the claim in which it appears, is indefinite.

VI. BACKGROUND

A. Overview of the '627 Patent

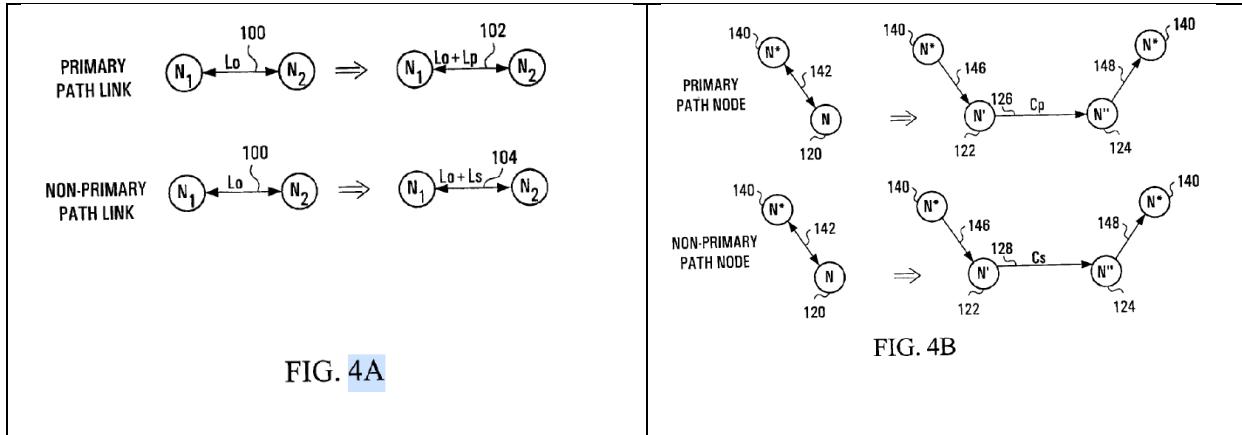
40. The '627 Patent generally describes processes that “facilitate the selection of multiple paths through a network represented by a network topology which take into account shared risk which may exist between network resources.” '627 Patent, 2:6-9.

41. The '627 Patent seeks to uniquely identify “network resources which share common risks . . . referred to herein as ‘shared risk groups’ or SRGs.” '627 Patent, 1:63-64. The network resources generally “include nodes and links” where “[t]he shared risk groups might include groups of nodes and/or groups of links.” '627 Patent, 2:28-30. SRGs can include network links that “share the same fiber” or “a single conduit.” '627 Patent, 4:33-35.

42. The '627 Patent states that the invention “identifies a first path through the network topology . . . where the first path comprises a first sequence of network resources,” and then acts to “determine if any of the at least one shared risk group includes any of the first sequence of network resources.” '627 Patent, at 2:13-18. Within the context of the '627 Patent, the claimed determination is important because it discourages the use of network resources in any shared risk group.” '627 Patent, Abstract.

43. The '627 Patent then proposes performing topology transformations that

“discourages the use of network resources” by backup paths when those resources are in an SRG with resources in the primary path. ’627 Patent, 1:59-2:25; and 6:49-61. The ’627 Patent describes such topology transformations as “assigning” an additional cost (L_s) to links and transforming “[e]ach node N 120 to be transformed [by] split[ing] into two nodes N’ 122, N” 124.” ’627 Patent, at 6:62-7:6; 7:11-12; and FIGS. 4A and 4B, reproduced below.



B. Overview of the ’755 Patent

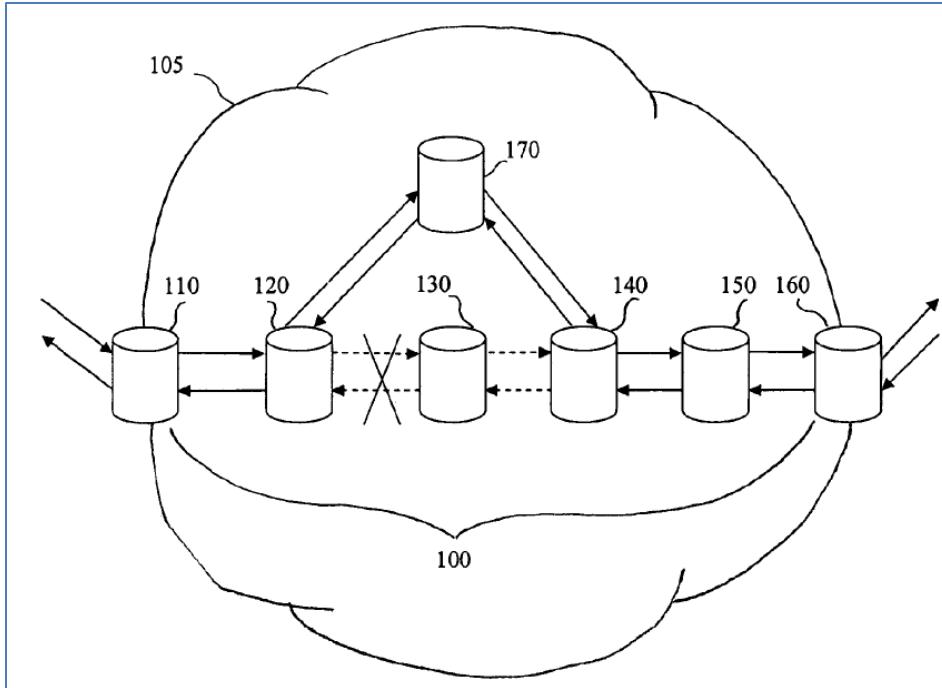
44. The ’755 Patent generally relates to the re-routing of traffic along label switched paths in both forward and backwards directions when there is a failure along the primary path. ’755 Patent, Abstract. The patent explains that “[u]pon the detection of a failure along a bi-directional label switched path, traffic in both forward and backward directions is re-routed to the same alternate path. ’755 Patent, Abstract.

45. More specifically, the ’755 Patent relates to systems and techniques for responding to failure “at a network device or link in a Multi-Protocol Label Switched (MPLS) network . . . using so-called virtual connections referred to as ‘label switched paths’ (LSPs).” ’755 Patent, 1:7-11. The background section explains that “[e]xisting MPLS Fast Re-Routing techniques are effective in re-routing MPLS labeled traffic in an LSP acting independently relative to other LSPs.” ’755 Patent, 1:19-20. But that “when LSPs are bundled together to operate in two

directions . . . MPLS Fast Re-routing does not perform well.” ’755 Patent, 22-25.

46. The ’755 Patent states that existing routing techniques which try to re-route traffic from a forward LSP to a predetermined alternate path are often fail because “there is no predetermined alternate path for a backward LSP in a bi-directional LSP.” ’755 Patent, 1:27-30. And that “once a failure occurs no traffic is allowed to flow in the backward direction. As a result, the bi-directional LSP can no longer operate as a bidirectional LSP; it now operates as a unidirectional LSP.” ’755 Patent, 1:30-33. The ’755 Patent further explains that existing routing techniques are deficient even when the “forward and backward LSPs . . . have alternate LSPs” because traditional techniques will “create[] two separate alternate paths (i.e., using different network elements) one for each direction, to overcome failure.” ’755 Patent, 1:34-38. According to the ’755 Patent, “[c]reating different alternate paths for the forward and backward LSPs of a bi-directional LSP makes it difficult to ensure the same quality of service.” ’755 Patent, 41-43.

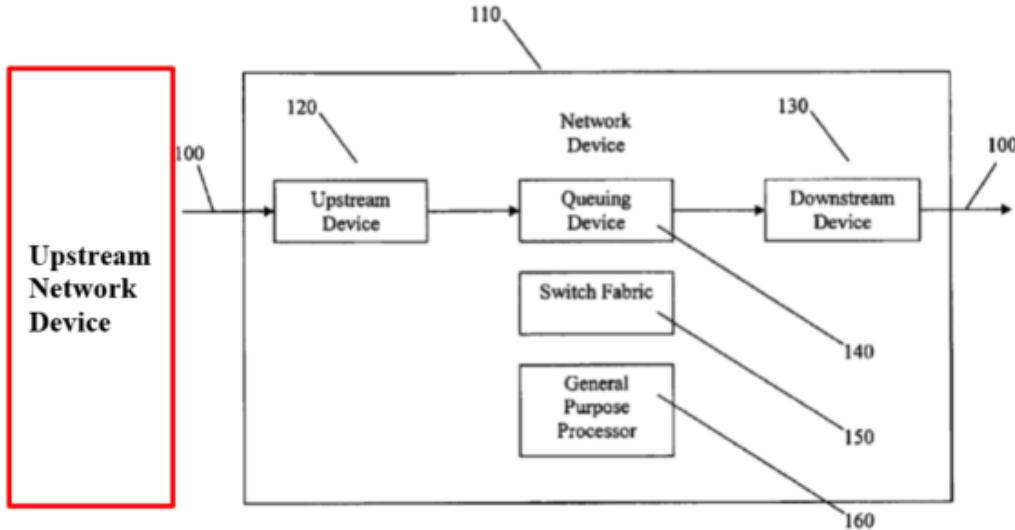
47. The inventors provided that “[t]he present invention [of the ’755 Patent] re-routes traffic traveling in both directions from a bi-directional LSP to an alternate path using the same network elements.” ’755 Patent, 1:48-50. The invention of the ’755 Patent is depicted in Figure 1 where the network 105 has a failure point “X” between network devices 120 and 130. ’755 Patent, 2:11-13. The patent purports to solve this problem by transmitting a switch over message from originating device 120 to the merging network device 140. ’755 Patent, 2:14-19. “Upon receiving the message, device 140 creates an alternate path in the backward direction using the same network elements.” ’755 Patent, 2:19-21. “Once the originating network device 120 and the merging network device 140 have determined the alternate path, they perform a switch over so that, in this example, both follow the same alternate path that passes through network device 170 as shown in FIG.1.” ’755 Patent, 2:22-32. Figure 1 is shown below.



C. Overview of the '973 Patent

48. The '973 Patent generally relates to the field of network devices, and more specifically, to a method and system for incorporating a queuing device in a network device in a communications network. *See* '973 Patent, 1:8-11. I understand that the earliest possible priority date of the '973 Patent is March 17, 2006.

49. A stated goal of the invention of the '973 Patent is to improve the performance of a network device, such as a router, switch, or gateway through the addition of the queuing device. *See* '973 Patent, 2:54-62. As shown below, a queuing device 140 is coupled to an upstream device 120 and a downstream device 130 in a network device 110. *See* '973 Patent, Fig. 1 and 4:17-21. Also, the network device 110 includes a general-purpose processor 160, which controls the overall operation of the network device 110. *See* '973 Patent, Fig. 1 (as reproduced, and annotated below as disclosed in 6:26-30) and 4:26-28.



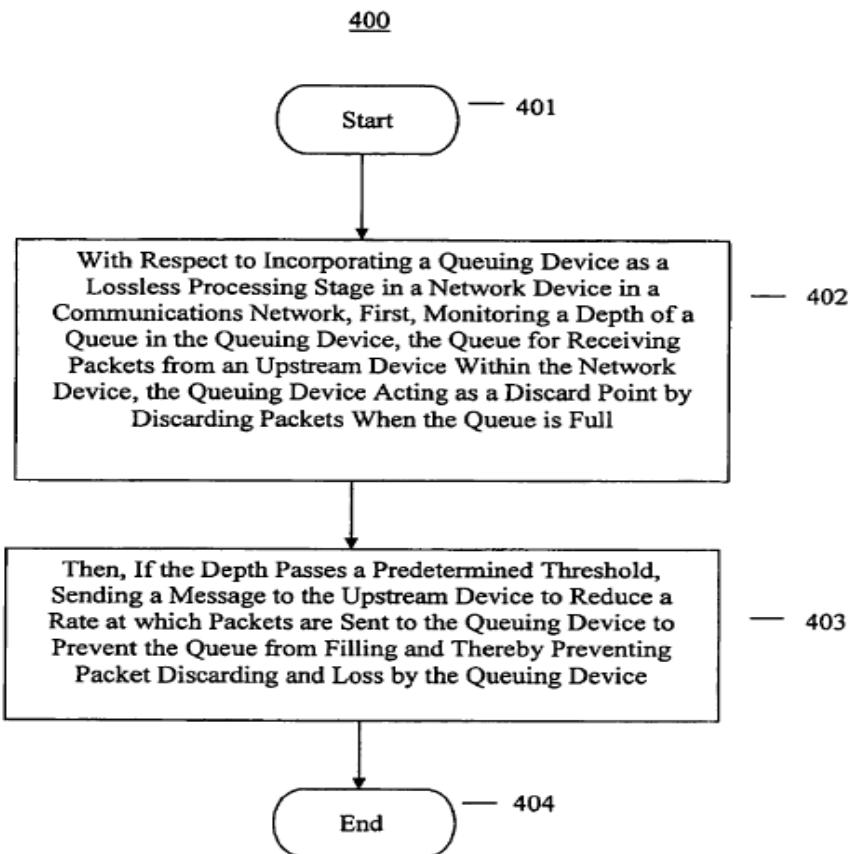
50. To prevent packets from being discarded to improve the overall performance of a network device 110, an upstream device 120 functions as a traffic manager to adjust a rate of packets to a queuing device 140. In particular, the '973 Patent proposed two ways to do so, including (1) having the upstream device 120 to enforce a command to reduce a rate of the packets, and/or (2) enabling the upstream device 120 to control a rate of the packets by determining whether to reduce or increase the rate based on the received depth of the queue in a queuing device. *See* '973 Patent, 5:55-6:15, 7:7-11 and 17-21.

51. As to (1), an upstream device 120 receives a message instructing it to “slow down or stop sending traffic destined to the congested queue or queues in the queuing device 140.” '973 Patent, 5:58-60. As to (2), an upstream device 120 receives another message “reporting the depth of the queue to the upstream device 120 to thereby enable the upstream device 120 to determine whether to reduce or increase the rate at which it sends packets to the queuing device 140.” '973 Patent, 7:17-21.

52. Further, the upstream device 120 may “forward or relay a message from the queuing device 140 . . . to an upstream network device . . . to thereby control the rate at which the upstream device 120 receives packets from the upstream network device.” '973 Patent, 6:26-32.

The upstream network device is added to the original Fig. 1 of the '973 Patent as shown above. The upstream network device, which is similar to the network device 110, appears to be external to the network device 110. *See* '973 Patent, 6:30.

53. Fig. 3 illustrate the functionalities as claimed in the '973 Patent as reproduced below. *See* '973 Patent, Fig. 3, 3:49-53 (“FIG. 3 is a flow chart illustrating operations of software modules within the memory of a data processing system for incorporating a queuing device as a lossless processing stage in a network device”) and 6:61-67 (“The above described method may be summarized with the aid of a flowchart. FIG. 3, as shown below is a flow chart illustrating operations 400 of software modules 331.”) In addition to the information about software modules being within the memory, the specification appears to have no further description about the structure or algorithms for those software modules.



VII. DISPUTED CLAIM TERMS

A. Terms for the '627 Patent

1. “second code means adapted to, for at least one shared risk group, determine if any of the at least one shared risk group includes any of the first sequence of network resources” (Claim 29)

“means adapted to, for at least one shared risk group, determine if any of the at least one shared risk group includes any of the first sequence of network resources” (Claim 30)

54. I understand that the parties agree that the terms identified above are means-plus-function terms having the function of “determine if any of the at least one shared risk group includes any of the first sequence of network resources.” I further understand that the parties dispute whether the terms are indefinite for failing to disclose corresponding structure. In my opinion, the '627 Patent does not disclose any corresponding structure for performing this function.

55. Claim 29 of the '627 Patent requires a “processing platform-readable medium having code means stored thereon” which comprises a “second code means adapted to, for at least one shared risk group, *determine if any of the at least one shared risk group includes any of the first sequence of network resources.*” Similarly, claim 30 requires a network management platform that comprises “means adapted to, for at least one shared risk group, *determine if any of the at least one shared risk group includes any of the first sequence of network resources.*”

56. I understand that there is a dispute between the parties as to whether the '627 Patent links the claimed function above to the corresponding structure in the specification. In my opinion, it does not.

57. In particular, the specification does not clearly link any components or algorithms to the function of determining if any of the at least one shared risk group includes any of the first sequence of network resources. I understand that WSOU’s proposed corresponding structure is “processing platform readable medium, and equivalents thereof” for claim 29, and “a network

management platform, and equivalents thereof” for claim 30.

58. In my opinion, there is no link between these components and the function of determining whether at least one shared risk group includes any of the first sequence of network resources. Indeed, the claim language itself in claims 29 and 30 provide that the “processing platform-readable medium” and the “network management platform” themselves must “comprise” structure that performs the claimed function. ’627 Patent, 12:37-50, and 12:61-13:6.

59. In my opinion, a POSITA would not understand that the claimed “processing platform-readable medium” and “network management platform” would themselves comprise a processing platform-readable medium and network management platform as asserted by WSOU.

60. In addition, the only reference to a “processing platform-readable medium” that is outside of the claims of the ’627 Patent states that “[a]nother broad aspect of the invention provides a processing platform readable medium having instructions stored thereon for allowing a processing platform, specific or nonspecific, to implement any of the methods described herein.” ’627 Patent, 3:19-23. In my opinion, a POSITA would not understand this reference to a processing platform-readable medium to be linked to the claimed function.

61. Similarly, the only reference to a “network management platform” that is outside of the claims of the ’627 Patent states that “[a]nother broad aspect of the invention provides a network management platform adapted to implement any of the methods described herein. This would include any suitable combination of hardware and/or software.” ’627 Patent, 3:24-27. In my opinion, a POSITA would not understand this reference to a network management platform to be linked to the claimed function.

62. I also believe that WSOU’s identification of purported algorithms fails to connect the claimed function to any sort of algorithm in the specification of the ’627 Patent. WSOU

identifies seven portions of the specification and three (3) different figures that purportedly disclose algorithms.

63. WSOU's first citation is to 2:13-54 of the '627 Patent's specification. This portion of the specification does not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. Instead, it discusses the general functionality of the claimed invention. While it does recite the functional claim language at issue, it does not link any structure or set of steps to the function of determining if any of the at least one shared risk group includes any of the first sequence of network resources.

64. The disclosure merely recites that “[a] first broad aspect of the invention provides a method of selecting multiple paths through a network represented by a network topology representing an interconnected set of resources. The method involves identifying a first path through the network topology from a source node to a destination node, the first path comprising a first sequence of network resources; for at least one shared risk group, determining if any of the at least one shared risk group includes any of the first sequence of network resources” '627 Patent, 2:10-18. The remaining portion of the citation goes on to discuss other functions of the invention without providing an algorithm, structure or set of steps to the function of determining if any of the at least one shared risk group includes any of the first sequence of network resources.

65. The second purported algorithm is disclosed at 3:54-4:15. This excerpt, in my opinion, is again not a disclosure of an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. Instead, the citation discusses the composition of different shared risk groups but there is no identification of what the “first sequence of network resource is” or how to determine if the at least one shared risk group includes any of the first sequence of network resources.

66. The third purported algorithm is disclosed at 4:45-5:33. This except, in my opinion, does not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. This citation generally discusses certain goals and objectives of SRG-constrained routing but does not disclose a specific algorithm for performing the claimed function.

67. The fourth purported algorithm is disclosed at 6:23-37. This except, in my opinion, does not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. This citation merely shows three shared risk groups based on the network illustrated in Figure 3B.

68. The fifth purported algorithm is disclosed at 6:52-7:52. The title of this portion of the specification is “Create a Transformed Topology in which the Resources of Each Shared Risk Group Including a Resource in the Primary Path are Transformed.” ’627 Patent, 6:49-51. This passage goes on to discuss how a topology transformation of links and nodes is purportedly performed in accordance with the alleged invention. There is no discussion regarding how a determination is made as to whether any of the at least one shared risk group includes any of the first sequence of network resources.

69. The sixth purported algorithm is disclosed at 9:18-23. This except, in my opinion, does not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. This citation discusses an example of a network topology with several shared risk groups but does not disclose a specific algorithm for performing the claimed function.

70. The seventh purported algorithm is disclosed at 12:46-50. This except, in my opinion, does not disclose an algorithm for determining if any of the at least one shared risk group

includes any of the first sequence of network resources. This citation is to the claim language of claim 29 and the disputed limitation. This citation does not disclose a specific algorithm for performing the claimed function.

71. The eighth and ninth purported algorithms are disclosed at Figures 3A and 3B. However, in my opinion, these figures do not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. Instead, the figures disclose “network topologies illustrating use of the method of Fig. 2 for shared risk group constraint based routing.” ’627 Patent, at 3:37-39. When Figures 3A and 3B are analyzed it is my opinion that Figure 3A shows an exemplary network topology with costs assigned to each link, and that Figure 3B shows three shared risk groups. In my opinion there is no discussion or detail regarding what the “first sequence of network resources” is or how one of skill in the art would determine if any of the at least one shared risk group includes any of the first sequence of network resources. Thus, it is my opinion that Figures 3A and 3B provide no structural link between any algorithm or component that can perform the function of determining if any of the at least one shared risk group includes any of the first sequence of network resources

72. The tenth purported algorithm is disclosed at Figure 6B. However, in my opinion, these figures do not disclose an algorithm for determining if any of the at least one shared risk group includes any of the first sequence of network resources. Instead, these figures are exemplary “network topologies illustrating the use of the method of FIG.2” ’627 Patent, 3:47-48. When Figure 6B is analyzed it is my opinion that it shows an exemplary network topology with labeled costs for each link and identifies 4 shared risk groups. In my opinion there is no discussion or detail regarding what the “first sequence of network resources” is or how one of skill in the art would determine if any of the at least one shared risk group includes any of the first sequence of

network resources. Thus, it is my opinion that Figure 6B provides no structural link between any algorithm or component that can perform the function of determining if any of the at least one shared risk group includes any of the first sequence of network resources.

73. Accordingly, in my opinion, the '627 Patent does not clearly link any corresponding structure to the function of "determining if any of the at least one shared risk group includes any of the first sequence of network resources." As such, it is my opinion, that claims 29 and 30 of the '627 Patent are indefinite.

B. Terms for the '755 Patent

1. **"means for re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message" (claim 8)**

"means for re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message" (claim 23)

"means for re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message" (claim 25)

74. I understand that the parties agree that the terms identified above are means-plus-function terms having the functions listed above (and in claims 8, 23, and 25, respectively). I further understand that the parties dispute whether the terms are indefinite for failing to disclose corresponding structure. In my opinion, the '755 Patent does not disclose any corresponding structure for performing the claimed functions.

75. Claim 8 requires a "system for re-routing traffic" that comprises a "merging network device" which further comprises "means for re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message." Similarly, claim 23 requires a "merging network device" comprising "means for re-routing traffic traveling along a bi-directional LSP in a backwards direction to an

alternate path in the backwards direction based on the switch over message.” And, likewise, claim 25 requires a “system for re-routing traffic” comprising “means for re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message.” I understand that there is a dispute regarding whether the ’755 Patent links the claimed functions to corresponding structure in the specification. In my opinion, it does not.

76. In particular, the specification does not clearly link any components or algorithms linked to the three identified functions. I understand that for each function Plaintiff’s proposed structure is “merging network device, and equivalents thereof” and “if required” the algorithms contained in “2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3.”

77. In my opinion, there is no understandable link between the merging network device itself and the three identified functions. Indeed, the claim language itself in claims 8 and 23 provide that the “merging network device” must comprise structure that performs the claimed function. ’755 Patent, 4:44-49, 5:20-27. In my opinion a POSITA would not understand that the claimed “merging network device” would itself comprise a merging network device as asserted by WSOU.

78. In addition, with respect to claim 25, I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. A POSITA would understand the disclosure of a “merging network device” within the context of the ’755 Patent to be a general purpose computer or general device. Therefore, the general reference to a “merging network device” is not sufficient enough to serve as corresponding structure.

79. In addition, while the merging network device is mentioned in the specification of the ’755 Patent, it is consistently done so through reference to functions of the merging network

device. For instance, the specification provides that merging network device 140 in Figure 1 “creates an alternate path in the backward direction using the same network elements” upon receipt of the switch over message. ’755 Patent, 2:19-21.

80. I also believe that WSOU’s identification of purported algorithms fails to connect the claimed function to any sort of algorithm in the specification of the ’755 Patent. WSOU identifies three (3) portions of the specification and three (3) different figures that purportedly disclose algorithms.

81. WSOU’s first citation is to 2:7-32 of the ’755 Patent’s specification. This does not disclose structure for performing the claimed functions. This portion of the specification discusses Figure 1 and, with respect to the merging network device, only discusses functions that the merging network device can perform. It does not disclose any structures present within the merging network device for performing the claimed functions.

82. WSOU’s second citation is to 2:43-60 of the ’755 Patent’s specification. This does not disclose structure for performing the claimed functions. This portion of the specification references what the patent describes as “a control processing section of a network device” and its functionality with respect to the originating network device rather than the merging network device. The section provides that “a control processing section of a network device is operable to detect or receive a failure notification message indicating that a failure has occurred along a link or interface making up a part of a primary path.” Then, the next step according to this citation is that “the control processing section is operable to determine whether its’ associated network device can operate as an originating network device in an alternate LSP. If so, the control processing section, at step 230, sends a switch over message along an alternate path to the merging network device . . . [and then] [a]fter the switch over message has been sent to the merging network device,

the originating network device (via the processing control section) performs a switch over, at step 240” There is no recitation within this citation to structures present within the merging network device to perform the claimed functions.

83. WSOU’s third citation is to 3:13-36 of the specification. This does not disclose structure for performing the claim functions. At best, this section discloses that the “control processing section” of the merging network device uses the switch over message “to determine an alternate path in the backward direction” and to “switch[], at step 320, backward flowing traffic to the alternate path.” In my opinion a POSITA would not understand what hardware components, or software algorithms, would make up the identified “control processing section.” As such, the “control processing section” is not sufficient structure for performing the claimed functions.

84. WSOU’s fourth citation is to Figure 1. This does not disclose structure for performing the claimed functions. Rather, Figure 1 is “a simplified block diagram showing an MPLS network 105 which includes elements capable of re-routing bi-directional LSP traffic upon detection of a failure.” There is no information in Figure 1 to indicate which structures the merging network devices comprises that perform the recited functions.

85. WSOU’s fifth citation is to Figure 2. This does not disclose structure for performing the claimed functions. Instead, Figure 2 “depicts a simplified flow diagram of technique(s) for re-routing MPLS traffic.” Again, there is no information in Figure 2 to indicate which structures the merging network devices comprises that perform the recited functions.

86. WSOU’s final citation is to Figure 3. This does not disclose structure for performing the claimed function. Rather, Figure 3 relates to the function of the merging network device itself. 3:13-16 (“FIG.3 is a simplified flow diagram of technique(s) which can be implemented in a merging network device to re-route MPLS traffic to an alternate path.”). There

is no information in Figure 3 to indicate which structures the merging network devices comprises that perform the recited functions.

87. Thus, in my opinion, the '755 Patent does not link any corresponding structure to the recited functions.

2. "means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction" (claims 20, 25)

88. I understand that the parties agree that the term identified above is a means-plus-function term having the function of "re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction." I further understand that the parties dispute whether the term is indefinite for failing to disclose corresponding structure. In my opinion, the '755 Patent does not disclose any corresponding structure for performing the claimed function.

89. Claim 20 requires a "system for re-routing traffic" comprising "an originating network device" that further comprises a "means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction." Claim 25 requires a "system for re-routing traffic" that comprises "means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction." I understand that there is a dispute regarding whether the '755 Patent links the claimed function to corresponding structure in the specification. In my opinion, it does not.

90. In particular the specification does not clearly link any components or algorithms to the identified function. I understand that Plaintiff's proposed structure is "originating network device, and equivalents thereof" and "if required" the algorithms contained in "1:51-56, 2:7-32, 2:43-60, Figs. 1, 2, 3." I note that this is the same structure Plaintiff proposes for Term #3 discussed below.

91. In my opinion, there is no understandable link between the originating network device itself and the identified function. Indeed, the claim language in claim 20 provides that the “originating network device” must comprise structure that performs the claimed function. ’755 Patent, 6:1-9. In my opinion a POSITA would not understand that the claimed “originating network device” would itself comprise an originating network device as asserted by WSOU.

92. In addition, with respect to claim 25, I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. A POSITA would understand the disclosure of an “originating network device” within the context of the ’755 Patent to be a general purpose computer or general device. Therefore, the general reference to an “originating network device” is not sufficient enough to serve as corresponding structure.

93. In addition, while the originating network device is mentioned in the specification of the ’755 Patent, it is consistently done so through reference to functions of the originating network device. For instance, the specification provides that originating network device 120 in Figure 1 “determines an alternate path (elements 120, 170 and 140) or uses a stored predetermined, alternate path to send a ‘switch over’ message to ‘merging’ network device 140.” ’755 Patent, 2:14-19.

94. I also believe that WSOU’s identification of purported algorithms fail to connect the claimed function to any sort of algorithm in the specification of the ’755 Patent. WSOU identifies three portions of the specification and three (3) different figures that purportedly disclose algorithms.

95. WSOU’s first citation is to 1:51-56. This does not disclose structure for performing the claimed function. Rather, this portion of the specification parrots the claim language by

reciting the function of the originating network device. It does not disclose any structures present within the originating network device itself that perform the claim function.

96. WSOU's second citation is to 2:7-32 of the '755 Patent's specification. This does not disclose structure for performing the claimed function. This portion of the specification discusses Figure 1 and, with respect to the originating network device, only discusses functions that the originating network device can perform. It does not disclose any structures present within the originating network device for performing the claimed function.

97. WSOU's third citation is to 2:43-60 of the '755 Patent's specification. This does not disclose structure for performing the claimed function. This portion of the specification references what the patent describes as "a control processing section of a network device" and its functionality with respect to the originating network device. The section provides that "a control processing section of a network device is operable to detect or receive a failure notification message indicating that a failure has occurred along a link or interface making up a part of a primary path." Then, the next step according to this citation is that is "the control processing section is operable to determine whether its' associated network device can operate as an originating network device in an alternate LSP. If so, the control processing section, at step 230, sends a switch over message along an alternate path to the merging network device . . . [and then] [a]fter the switch over message has been sent to the merging network device, the originating network device (via the processing control section) performs a switch over, at step 240 . . ." In my opinion a POSITA would not understand what hardware components, or software algorithms, would make up the "control processing section." As such, the "control processing section" is not sufficient structure for performing the claimed function.

98. WSOU's fourth citation is to Figure 1. This does not disclose structure for

performing the claimed function. Rather, Figure 1 is “a simplified block diagram showing an MPLS network 105 which includes elements capable of re-routing bi-directional LSP traffic upon detection of a failure.” There is no information in Figure 1 to indicate which structures the originating network device comprises which perform the recited function.

99. WSOU’s fifth citation is to Figure 2. This does not disclose structure for performing the claimed function. Instead, Figure 2 “depicts a simplified flow diagram of technique(s) for re-routing MPLS traffic.” Again, there is no information in Figure 2 to indicate which structures the originating network device comprises which perform the recited function.

100. WSOU’s final citation is to Figure 3. This does not disclose structure for performing the claimed function. Rather, Figure 3 relates to the function of the merging network device itself. 3:13-16 (“FIG.3 is a simplified flow diagram of technique(s) which can be implemented in a merging network device to re-route MPLS traffic to an alternate path.”). There is no information in Figure 3 to indicate which structures the originating network devices comprises which perform the recited function.

101. Thus, in my opinion, the ’755 Patent does not link any corresponding structure to the recited function.

3. “means for transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction” (Claim 20)

“means for transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backwards direction” (Claim 25)

102. My opinions regarding this term are largely similar to my opinions for term #2, above. My opinions are clarified here for completeness.

103. I understand that the parties agree that the terms identified above are means-plus-

function terms having the function identified above (and in claims 20 and 25 respectively). I further understand that the parties dispute whether these terms are indefinite for failing to disclose corresponding structure. In my opinion, the '755 Patent does not disclose any corresponding structure for performing the claimed functions.

104. Claim 20 requires a “system for re-routing traffic” comprising “an originating network device” that further comprises a “means transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction.” Claim 25 requires a “system for re-routing traffic” that comprises “means for transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backwards direction.” I understand that there is a dispute regarding whether the '755 Patent links the claimed functions to corresponding structures in the specification. In my opinion, it does not.

105. In particular the specification does not clearly link any components or algorithms to the identified functions. I understand that Plaintiff's proposed structure is “originating network device, and equivalents thereof” and “if required” the algorithms contained in “1:51-56, 2:7-32, 2:43-60, 3:9-36, Figs. 1, 2, 3.” I note that this is the same structure Plaintiff proposes for Term #2 discussed above.

106. In my opinion, there is no understandable link between the originating network device itself and the identified functions. Indeed, the claim language in claim 20 provides that the “originating network device” must comprise structure that performs the claimed function. '755 Patent, 6:1-9. In my opinion a POSITA would not understand that the claimed “originating network device” would itself comprise an originating network device as asserted by WSOU.

107. In addition, with respect to claim 25, I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. A POSITA would understand the disclosure of an “originating network device” within the context of the ’755 Patent to be a general purpose computer or general device. Therefore, the general reference to an “originating network device” is not sufficient enough to serve as corresponding structure.

108. In addition, while the originating network device is mentioned in the specification of the ’755 Patent, it is consistently done so through reference to functions of the originating network device. For instance, the specification provides that originating network device 120 in Figure 1 “determines an alternate path (elements 120, 170 and 140) or uses a stored predetermined, alternate path to send a ‘switch over’ message to ‘merging’ network device 140.” ’755 Patent, 2:14-19.

109. I also believe that WSOU’s identification of purported algorithms fail to connect the claimed function to any sort of algorithm in the specification of the ’755 Patent. WSOU identifies three portions of the specification and three (3) different figures that purportedly disclose algorithms.

110. WSOU’s first citation is to 1:51-56. This does not disclose structure for performing the claimed function. Rather, this portion of the specification parrots the claim language by reciting the function of the originating network device. It does not disclose any structures present within the originating network device itself that perform the claim function.

111. WSOU’s second citation is to 2:7-32 of the ’755 Patent’s specification. This does not disclose structure for performing the claimed function. This portion of the specification discusses Figure 1 and, with respect to the originating network device, only discusses functions

that the originating network device can perform. It does not disclose any structures present within the originating network device for performing the claimed function.

112. WSOU's third citation is to 2:43-60 of the '755 Patent's specification. This does not disclose structure for performing the claimed function. This portion of the specification references what the patent describes as "a control processing section of a network device" and its functionality with respect to the originating network device. The section provides that "a control processing section of a network device is operable to detect or receive a failure notification message indicating that a failure has occurred along a link or interface making up a part of a primary path." Then, the next step according to this citation is that is "the control processing section is operable to determine whether its' associated network device can operate as an originating network device in an alternate LSP. If so, the control processing section, at step 230, sends a switch over message along an alternate path to the merging network device . . . [and then] [a]fter the switch over message has been sent to the merging network device, the originating network device (via the processing control section) performs a switch over, at step 240 . . ." In my opinion a POSITA would not understand what hardware components, or software algorithms, would make up the "control processing section." As such, the "control processing section" is not sufficient structure for performing the claimed functions.

113. WSOU's fourth citation is to 3:9-36. This does not disclose structure for performing the claimed function. Rather, this section notes a function of the originating device ("setting up an alternate path") and then discusses functionality of the merging network device with reference to Figure 3. Towards the end of this citation the patent again discusses functionality of the originating network device. There is no information within this section to indicate which structures the originating device comprises which perform the recited functions.

114. WSOU's fifth citation is to Figure 1. This does not disclose structure for performing the claimed function. Rather, Figure 1 is "a simplified block diagram showing an MPLS network 105 which includes elements capable of re-routing bi-directional LSP traffic upon detection of a failure." There is no information in Figure 1 to indicate which structures the originating network device comprises which perform the recited functions.

115. WSOU's sixth citation is to Figure 2. This does not disclose structure for performing the claimed function. Instead, Figure 2 "depicts a simplified flow diagram of technique(s) for re-routing MPLS traffic." Again, there is no information in Figure 2 to indicate which structures the originating network device comprises which perform the recited functions.

116. WSOU's final citation is to Figure 3. This does not disclose structure for performing the claimed function. Rather, Figure 3 relates to the function of the merging network device itself. 3:13-16 ("FIG.3 is a simplified flow diagram of technique(s) which can be implemented in a merging network device to re-route MPLS traffic to an alternate path."). There is no information in Figure 3 to indicate which structures the originating network devices comprises which perform the recited functions.

117. Thus, in my opinion, the '755 Patent does not link any corresponding structure to the recited functions.

4. "means for means for [sic] receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction" (claim 23)

118. My opinions regarding this term are largely similar to my opinions for term #1, above. My opinions are clarified here for completeness.

119. I understand that the parties agree that the term identified above is a means-plus-function term having the function of "receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction." I further understand that the parties

dispute whether the term is indefinite for failing to disclose corresponding structure. In my opinion, the '755 Patent does not disclose any corresponding structure for performing the claimed function.

120. Claim 23 requires a “merging network device” comprising “means for receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction.” I understand that there is a dispute regarding whether the '755 Patent links the claimed functions to corresponding structure in the specification. In my opinion, it does not.

121. In particular the specification does not clearly link any components or algorithms to the identified function. I understand that Plaintiff's proposed structure is “merging network device, and equivalents thereof” and “if required” the algorithms contained in “2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3.” I note that this is the exact same structure Plaintiff identified for Term #1 discussed above.

122. In my opinion, there is understandable link between the merging network device itself and the identified function. Indeed, the claim language in claim 23 provides that the “merging network device” must comprise structure that performs the claimed function. '755 Patent, 6:20-27.

123. In my opinion a POSITA would not understand that the claimed “merging network device” would itself comprise a merging network device as asserted by WSOU.

124. In addition, while the merging network device is mentioned in the specification of the '755 Patent, it is consistently done so through reference to functions of the merging network device. For instance, the specification provides that merging network device 140 in Figure 1 “creates an alternate path in the backward direction using the same network elements” upon receipt of the switch over message. '755 Patent, 2:19-21.

125. I also believe that WSOU’s identification of purported algorithms fails to connect the claimed function to any sort of algorithm in the specification of the ’755 Patent. WSOU identifies three portions of the specification and three (3) different figures that purportedly disclose algorithms.

126. WSOU’s first citation is to 2:7-32 of the ’755 Patent’s specification. This does not disclose structure for performing the claimed function. This portion of the specification discusses Figure 1 and, with respect to the merging network device, only discusses functions that the merging network device can perform. It does not disclose any structures present within the merging network device for performing the claimed function.

127. WSOU’s second citation is to 2:43-60 of the ’755 Patent’s specification. This does not disclose structure for performing the claimed function. This portion of the specification references what the patent describes as “a control processing section of a network device” and its functionality with respect to the originating network device rather than the merging network device. The section provides that “a control processing section of a network device is operable to detect or receive a failure notification message indicating that a failure has occurred along a link or interface making up a part of a primary path.” Then, the next step according to this citation is that is “the control processing section is operable to determine whether its’ associated network device can operate as an originating network device in an alternate LSP. If so, the control processing section, at step 230, sends a switch over message along an alternate path to the merging network device . . . [and then] [a]fter the switch over message has been sent to the merging network device, the originating network device (via the processing control section) performs a switch over, at step 240 . . .” There is no recitation within this citation to structures present within the merging network device to perform the claimed function.

128. WSOU's third citation is to 3:13-36 of the specification. This does not disclose structure for performing the claim functions. At best, this section discloses that the "control processing section" of the merging network device uses the switch over message "to determine an alternate path in the backward direction" and to "switch[], at step 320, backward flowing traffic to the alternate path." In my opinion a POSITA would not understand what hardware components, or software algorithms, would make up the "control processing section." As such, the "control processing section" is not sufficient structure for performing the claimed functions.

129. WSOU's fourth citation is to Figure 1. This does not disclose structure for performing the claimed function. Rather, Figure 1 is "a simplified block diagram showing an MPLS network 105 which includes elements capable of re-routing bi-directional LSP traffic upon detection of a failure." There is no information in Figure 1 to indicate which structures the merging network devices comprises which perform the recited function.

130. WSOU's fifth citation is to Figure 2. This does not disclose structure for performing the claimed function. Instead, Figure 2 "depicts a simplified flow diagram of technique(s) for re-routing MPLS traffic." Again, there is no information in Figure 2 to indicate which structures the merging network devices comprises which perform the recited function.

131. WSOU's final citation is to Figure 3. This does not disclose structure for performing the claimed function. Rather, Figure 3 relates to the function of the merging network device itself. 3:13-16 ("FIG.3 is a simplified flow diagram of technique(s) which can be implemented in a merging network device to re-route MPLS traffic to an alternate path."). There is no information in Figure 3 to indicate which structures the merging network devices comprises which perform the recited function.

132. Thus, in my opinion, the '755 Patent does not link any corresponding structure to

the recited function.

C. Disputed Terms for the '973 Patent

1. "the message" (claims 1, 9)

133. In my opinion, a POSITA would not understand with reasonable certainty what the scope of the term "the message" in claim element [1d] ("sending the message from the upstream device to an upstream network device to thereby control a rate at which the upstream device receives packets from the upstream network device") covers. This is because there are two different messages separately introduced in claim element [1b] ("sending a message to the upstream device to reduce a rate at which packets are sent to the queuing device to prevent the queue from filling, thereby preventing packet discarding and loss by the queuing device") (hereinafter referred to as "Message 1") and claim element [1c] ("sending a message reporting the depth of the queue to the upstream device to thereby enable the upstream device to determine whether to reduce or increase the rate at which the upstream device sends packets to the queuing device") (hereinafter referred to as "Message 2"), and it is unclear which message, namely Message 1 in claim element [1b] or Message 2 in claim element [1c], is "the message" in claim element [1d]. I note that the same issue also occurs in claim 9. Therefore, it is my opinion that the term "the message" in claims 1 and 9 is indefinite. For the sake of brevity, my opinions as provided below only recite claim elements in claim 1. However, the same arguments equally apply to claim 9, which has similar claim language.

134. In my opinion, a POSITA would view the claimed Messages 1 and 2 as different messages to be received by an upstream device in view of the intrinsic evidence, including the claim language, specification, and prosecution history of the '973 Patent. Therefore, being unable to ascertain to which message "the message" in claim element [1d] refers will make the scope of "the message" unclear. As a result, claims 1 and 9 are indefinite.

135. The specification of the '973 Patent provides that an upstream device may adjust a rate of packets to prevent packet loss in two ways, including (1) "passively" enforce a command to reduce a rate of the packets, and/or (2) "actively" control a rate of the packets by determining whether to reduce or increase the rate based on the received depth of the queue in a queuing device. It is clear that the Message 1 as claimed corresponds to "passively" enforcing a command to reduce a rate of the packets because Message 1 is a message instructing an upstream device to reduce a rate of the packets. The sending of Message 1 is triggered "if the depth of the queue passes a predetermined threshold," which indicates that the queue(s) in the queuing device are congested. '973 Patent, Claim 1 and 5:55-60.

136. With respect to "passively" enforcing a command, the specification of the '973 Patent also provides that another message may be sent to the upstream device to increase the rate of packets "if the depth drops below the predetermined threshold," which indicates that the queue(s) in the queuing device are drained. '973 Patent, Claim 2 and 5:60-62. That message appears to correspond to the subject matter recited in claim 2.

137. On the other hand, Message 2 corresponds to "actively" controlling a rate of the packets because Message 2 is a message reporting the depth of the queue to enable the upstream device to actively control a rate of the packets based on the received depth of the queue.

138. The prosecution history also shows the difference between Messages 1 and 2. For example, the patent applicants amended the claims to add the claim element [1c] of Message 2 in response to the patent examiner's assertion that the Gupta prior art reference discloses Message 1. *See Exhibit D*, "01/06/2009 non-final Office Action in the prosecution history of the '973 Patent," at 3 and **Exhibit E**, "03/03/2009 Office Action response in the prosecution history of the '973 Patent," at 2, 4.

139. Moreover, the patent applicants argued in a Pre-appeal Brief:

In other words, the system of Gupta sends a message instructing the ingress queue to slow down the rate at which packets are dequeued, rather than sending a message reporting the depth of the egress queue and letting the ingress queue determine the appropriate action (i.e., whether to increase to decrease the rate of packets dequeued). Thus, the system of Gupta, by only sending threshold crossing events rather than actual queue depths, lacks the error recovery functionality described above.

Exhibit F, “04/08/2009 Pre-appeal Brief in the prosecution history of the ’973 Patent,” at 3 (emphasis added). In the Appeal Brief, the patent applicants also argued:

Moreover, Applicant respectfully submits that Gupta fails to enable an upstream device to determine whether to reduce or increase the packet sending rate. Instead, the congestion messages [124] function as direct commands to the ingress queue manager [108]. Gupta completely lacks any concept of determining the rate in an upstream device because Gupta’s egress queue manager [106] dictates the subsequent actions of the ingress queue manager [108]. In addition, Gupta only describes rate reduction, never describing an option to increase a packet rate.

Exhibit G, “07/17/2009 Appeal Brief in the prosecution history of the ’973 Patent,” at 11 (emphasis added).

140. According to the prosecution history as highlighted above, the patent applicants argued that Message 2 is different from Message 1 in order to overcome a rejection based on the Gupta prior art that discloses a direct command dictating/instructing an ingress queue (the claimed upstream device) to slow down a rate of packets, which is Message 1. Therefore, it is my opinion

that a POSITA would understand, as the patent applicants made it clear, that Message 1, like Gupta's direct command, is a message to directly instruct/command/dictate an upstream device to reduce a rate of packets. A POSITA would also understand that Message 1 is not like Message 2 because it is not a message to enable an upstream device itself to actively control a rate of packets.

141. The claim language in claims 1 and 9 also reveals the difference between Messages 1 and 2. For example, when Message 2 is introduced in claim element [1c], it is introduced as "a message reporting the depth . . .," instead of "the message reporting the depth." '973 Patent, Claim 1.

142. WSOU asserts that "the message" refers to Message 1 in claim element [1b]. *See* Opening Brief, at 5. I disagree, because in my opinion, the intrinsic evidence fails to inform a POSITA whether "the message" refers to Message 1 or Message 2.

143. Specifically, claim element [1d] recites "sending the message from the upstream device to an upstream network device to thereby control a rate at which the upstream device receives packets from the upstream network device." '973 Patent, Claim 1. A POSITA would not understand which way of controlling the rate is specified in claim element [1d]. Therefore, it is unclear which message, namely Message 1 and Message 2, should be sent to an upstream network device. In my opinion, the phrase "to thereby control a rate" only states an effect resulted from the operation of an upstream network device after it receives "the message" from an upstream device.

144. WSOU asserts that "in [claim] element 1c, the act of sending of [sic] the message itself does not affect rate," and, therefore "only [claim] elements 1b and 1d specify that the sending of the message is to either reduce or control a rate." Opening Brief, at 5, 7. In my opinion, a POSITA would not agree with such assertions. For example, the claim language and specification

explicitly recite that Message 2 in claim element [1c] can enable an upstream device to determine whether to reduce or increase the rate, and, therefore, Message 2 also acts with respect to controlling a rate of packets. '973 Patent, Claim 1 and 7:17-21. Moreover, during prosecution, the patent applicants amended the claims to add element [1c] and Message 2 and explicitly argued that “[b]y periodically reporting queue depths rather than only reporting threshold crossing events, the system will let the source determine an appropriate transmit rate . . .” **Exhibit E**, “03/03/2009 Office Action response in the prosecution history of the ’973 Patent,” at 2, 4, 13.

145. In fact, a POSITA would understand that to fully control a rate of packets, a device should be able to either reduce or increase the rate. Therefore, compared to Message 1, which only instructs an upstream device to reduce a rate of packets, Message 2 can enable the upstream device to fully control a rate of packets by either reducing or increasing the rate. As such, I do not agree with WSOU’s position that “the message” should only refer to Message 1 in claim element [1b].

146. Further, I believe that WSOU’s claims that the act of sending Message 2 itself does not affect a rate is incorrect. *See* Opening Brief, at 7. First, as stated above, Message 2 also involves a rate control. Second, a POSITA would understand that the act of sending any message to an upstream device itself would not affect a rate of packets. Instead, the rate is actually affected by the operation of the upstream device after receiving Message 1 and/or Message 2.

147. Based on the foregoing, it is my opinion that WSOU’s assertion that “the message” refers to only Message 1 is incorrect. It is further my opinion that a POSTIA cannot ascertain the meaning of “the message” in claim element [1d] based on the claim language, specification, or prosecution history of the ’973 Patent. Therefore, claims 1 and 9, requiring “the message,” are indefinite.

2. “**a module for, if the depth of the queue passes a predetermined threshold, sending a message to the upstream device to reduce a rate at which packets are sent to the queuing device to prevent the queue from filling, thereby preventing packet discarding and loss by the queuing device**” (“Module 1”) (claim 9)
3. “**a module for sending a message reporting the depth of the queue to the upstream device to thereby enable the upstream device to determine whether to reduce or increase the rate at which the upstream device sends packets to the queuing device**” (“Module 2”) (claim 9)
4. “**a module for sending the message from the e stream device to an upstream network device to thereby control a rate at which the upstream device receives packets from the upstream network device**” (“Module 3”) (claim 9)

148. I understand that the parties dispute whether the claim terms above are drafted as “means-plus-function” terms. It is my opinion that these terms are means-plus-function terms because they fail to recite sufficient structure for performing the functions in the claim language.

149. WSOU asserts that the claim language recites a specific structure that can perform the functions as claimed in current terms because the claim language recites various devices in the preamble and a processor. *See* Opening Brief, at 8-10. However, those descriptions are high-level descriptions about various devices and a processor in a network device. In my opinion, a POSITA would not understand what structure performs the functions as claimed.

150. Claim 9 recites “modules executed by the processor, the modules including:” the Modules 1, 2, and 3 in dispute, and “[a] system for incorporating a queuing device as a lossless processing stage in a network device in a communications network between an upstream device and a downstream device in the network device.” ’973 Patent, Claim 9. However, the claim language itself fails to disclose any structural character between the current terms and those devices as recited above, including a processor, a queuing device, an upstream device, a downstream device, and a network device. Moreover, the word “module” itself does not indicate any structure to perform the functions as claimed.

151. For example, in my opinion, a POSITA cannot ascertain whether the structure for performing each of the functions as claimed in Modules 1, 2, and 3 are located within any of those devices as recited by the preamble, or external to all of them.

152. As a further example, a POSITA also cannot ascertain whether the same or different structure(s) perform(s) the functions as claimed in Modules 1, 2, and 3 and another module as recited in claim 9, and/or any associated structural interaction between Modules 1, 2, and 3 and another module as recited in claim 9.

153. Tellingly, the claim language of claim 9 does not require that any of the Modules 1, 2, and 3 “comprise or include” any structure, such as a processor, a memory, any physical device, or any combination thereof. Therefore, in my opinion, a POSITA would not understand what structure performs the functions as claimed.

154. WSOU also asserts that the claim language recites sufficient structure by citing to Fig. 3 of the '973 Patent, which shows software modules 331 residing in memory 330. *See* Opening Brief, at 10. However, a POSITA would not understand whether the claim language recites sufficient structure for performing the functions as claimed based only on the disclosures in the specification, including the memory 330. *See* '973 Patent, Fig. 3. According to the above, it is my opinion that the current terms should be considered as means-plus-function terms.

155. If the current terms are construed as means-plus-function terms, in my opinion, there is no corresponding structure described in the specification of the '973 Patent that performs the claimed functions. Therefore, claim 9 is indefinite.

156. Specifically, Figs. 2 and 3 of the '973 Patent disclose a processor (160 or 320) and a memory (330) of a data processing system (300). *See* '973 Patent, Figs. 2-3 and 4:31-39 and 59-64. At most, with respect to “modules,” the specification states “the programmed instructions may

be embodied in one or more software modules 331 resident in the memory 330.” ’973 Patent, 4:62-63. However, I understand that the structure disclosed in the specification needs to be more than simply a general purpose computer or microprocessor. Therefore, a processor, a memory, or combination of them as generally disclosed by the specification of the ’973 Patent is not sufficient enough to serve as corresponding structure for the current terms.

157. I understand that when the claim requires a computer-implemented function, the specification should generally disclose an algorithm that accomplishes the claimed function. In my opinion, however, an algorithm that accomplishes the claimed functions in Modules 1, 2, and 3 is not disclosed in the specification of the ’973 Patent.

158. As to Modules 1 and 2, the specification fails to disclose any algorithm that accomplishes either the step of “if the depth of the queue passes a predetermined threshold, sending a message to the upstream device to reduce a rate at which packets are sent to the queuing device . . . ,” or the step of “sending a message reporting the depth of the queue to the upstream device to thereby enable the upstream device . . . ,” as claimed. For example, the flow chart in Fig. 3 and corresponding description at 7:1-21 are not sufficient because they only mirror the functions as required by the claim language. *See ’973 Patent, Fig. 3 and 7:1-21.*

159. There is no further disclosure regarding a particular procedure for sending a message to an upstream device to reduce a rate of packets to the queuing device thereby preventing packet discarding and loss by the queuing device. A POSITA would understand that in order to prevent packet discarding and loss by the queuing device, certain interaction or coordination must occur among several entities, namely an upstream device (which sends packets), a queuing device (which receives packets), and “certain unknown structure” (which sends a message to the upstream device), at least regarding the status of the queues in the queuing device and a rate of packets.

However, none of such interaction or coordination is described in the specification.

160. There is also no disclosure regarding a particular procedure for enabling the upstream device to determine whether to reduce or increase the rate. A POSITA would understand that in order to enable an upstream device to determine whether to reduce or increase a rate of packets, certain interaction or coordination must occur among several entities, namely an upstream device (which sends packets), a queuing device (which receives packets and reports the depth of the queues), and “certain unknown structure” (which receives information about the depth of the queue from the queuing device and sends a message to the upstream device accordingly). However, none of such interaction or coordination is described in the specification.

161. As to Module 3, it is further my opinion that the specification fails to disclose any algorithm that accomplishes the step of “sending the message from the e stream device to an upstream network device to thereby control a rate.” There is not even a flow chart or similar description that describes an algorithm to perform the function as claimed in Module 3.

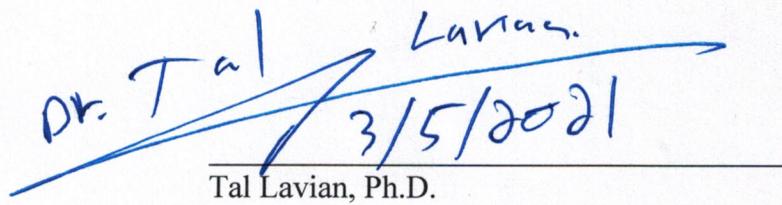
162. In my opinion, the specification at 6:26-32 is the only paragraph that is relevant to the function as claimed in Module 3. *See '973 Patent, 6:26-32 (“the upstream device 120 may forward or relay a message from the queuing device 140 . . . to an upstream network device”).* However, that disclosure still fails to disclose any interaction or coordination occurring between the upstream device and “certain structure” that makes the upstream device forward the message to an upstream network device to thereby control a rate of packets.

163. Moreover, with respect to packet transmission, the specification discloses that various packets may be transmitted between an upstream network device and a network device, such as Internet Protocol (“IP”) packets, multiprotocol label switching (“MPLS”) packets, or asynchronous transfer mode (“ATM”) packets. *See '973 Patent, 7:27-30.* However, the

specification is wholly silent as to detailed protocols, formats, or encoding/decoding methods of the claimed message that are needed in coordination/interaction among multiple entities (at least including an upstream network device, an upstream device in a network device, and “certain structure” that makes the upstream device send the message to the upstream network device) to adjust transmissions of various packets. The specification also fails to disclose any procedure or algorithms as to how “certain structure” makes the upstream device be able to forward the message that relates to adjusting a rate of packets within a network device to an external upstream network device to thereby control a rate of packets from the external upstream network device to the network device.

164. In conclusion, because the specification of the ’973 Patent fails to disclose an algorithmic structure that performs the claimed functions in the current terms, it is my opinion that claim 9 is indefinite.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 5th day of March, 2021.


Dr. Tal Lavian
3/5/2021
Tal Lavian, Ph.D.